

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/515,517	02/29/2000	Michael Lounsbery	1252.1044/JRB	1702
21171	7590	08/09/2004	EXAMINER	
STAAS & HALSEY LLP			WERNER, BRIAN P	
SUITE 700			ART UNIT	
1201 NEW YORK AVENUE, N.W.			PAPER NUMBER	
WASHINGTON, DC 20005			2621	

DATE MAILED: 08/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action**

Application No.

09/515,517

Applicant(s)

LOUNSBERY, MICHAEL

Examiner

Brian P. Werner

Art Unit

2621

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 6/28/2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check either a) or b)]

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.  
b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.  
2. ☐ The proposed amendment(s) will not be entered because:  
(a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ they raise the issue of new matter (see Note below);  
(c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
4. ☒ Newly proposed or amended claim(s) g would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Attachment.  
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.  
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: g.

Claim(s) objected to: \_\_\_\_\_.

Claim(s) rejected: 1-7, 9-17.

Claim(s) withdrawn from consideration: \_\_\_\_\_.

8. ☐ The drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.  
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.  
10. ☐ Other: \_\_\_\_\_

  
BRIAN WERNER  
PRIMARY EXAMINER

Attachment To Advisory Action

Each of the arguments received on June 28, 2004 are addressed:

Summary of Remark (Response Page 5): The rejection of claim 8 should be withdrawn in light of the amendment.

Examiner's Response: Agreed. The amendment will be entered upon appeal, and claim 8 will be allowable.

Summary of Remark (Response Page 5): In the previous Office Action, the examiner indicated claims 1-17 as being rejected over the prior art.

Examiner's Response: This was a typo. Claim 8 is not rejected over the prior art.

Summary of Remark (Response Page 5): The "field of endeavor of Kolarov is very different from that of the present invention", "Kolarov is non-analogous art to the present invention", and "for this reason, the rejection should be withdrawn".

Examiner's Response: This seems to be a non-analogous art argument, which is usually reserved for obviousness (i.e., 35 U.S.C. 103) combinations. In the case of claim 1 for example, Kolarov anticipates the claimed requirements, and the claim does not place itself in a particular field of endeavor. Therefore, it is not clear what the applicant's DISCLOSED FIELD OF ENDEAVOR has to do

Art Unit: 2621

with the claimed invention. In an anticipation (i.e., 35 U.S.C. 102) rejection, as long as a reference anticipates the elements of a claim, field of endeavor is absolutely irrelevant. Likewise, a person infringing a patent claim may infringe that claim even though he/she uses the invention in a different field of endeavor. This argument is not convincing.

Summary of Remark (Response Page 5): Regarding claim 9, the examiner's arguments that "V1 is surrounded by T" is "not correct".

Examiner's Response:

First, looking at the applicant's own figures, new vertices are created that lie on the original base polygon. For example, looking at figure 6, a new vertex "00" is created that lies on the original base polygon. Thus, the term "surrounded", as interpreted in light of the applicant's disclosure, encompasses vertices that lie on the base polygon. Thus, vertex "V1" of the prior art meets the claim limitation "surrounded" for this reason.

Second, Kolarov discloses the creation of new subdivision surfaces having vertices that are completely surrounded by the base polygon, such as "V1", numeral "666" at figure 6. This vertex meets the stricter interpretation of "surrounded" as advocated by the applicant in the arguments.

Before commencing with examiner's response, it would be helpful to re-state and even expound upon the examiner's interpretation of Kolarov's data structure. This interpretation is taken from Kolarov's figure 6, and from column 17, line 57 through column 18, line 15. Each of the subdivision triangles are

Art Unit: 2621

stored "a record" (Kolarov column 17, line 57). Each record has at least four fields, including:

Pointers to descendent triangles;

Pointers to vertices;

Parameterization (CW or CCW); and

A Name.

For example, the top level triangle in figure 6, named "T", has a record comprising:

T0, T1, T2, T3

V1, V2, V3

CCW

T

First subdivision triangle T0 has a record:

Empty (no descendents, see "nil at the finest level" at column 17, line 59);

V1, V2, V3

CW

T0

First subdivision triangle T1 has a record:

T1, 0; T1, 1; T1, 2; T1, 3

V1, V2, V3

CCW

T1

Second Subdivision triangle T1, 0 has a record:

Empty

V1, V2, V3

CCW

T1, 0

The remainder of the sub-division surfaces are recorded in the same manner. Through the use of "pointers" (e.g., "pointers to its descendant's triangles" at column 17, line 58), the records of each of the descendent triangles are linked, thus forming a single data structure that represents the surface being modeled. The data structure serves to provide a "self-consistent and unambiguous" naming scheme, whereby each and every triangle can be uniquely located on a surface being sub-divided. The surfaces being sub-divided are not limited to spheres, as described in the preferred embodiment, but are applicable to "applications such as animation, modeling of natural phenomena, etc." at column 23, line 43.

Art Unit: 2621

Returning the claim 9, Kolarov meets the limitations as follows:

A method of determining a unique identifier ("self-consistent and unambiguous" at column 18, line 16) for a new face of a mesh in a subdivision surface (e.g., face T1, 0 at figure 6) created by a new vertex (vertex V1 666 at figure 6), comprising:

Determining a base mesh face surrounding the new vertex (face T, numeral 610 in figure 6);

Determining a vertex index of the new face (as described above, according to Kolarov, subdivision triangle T1, 0 has a record:

Empty

V1, V2, V3

CCW

T1, 0

And V1, V2, V2 is a vertex index); and

Determining a path to the new face (as describe above, first subdivision triangle T1 has a record:

T1, 0; T1, 1; T1, 2; T1, 3

V1, V2, V3

CCW

T1



And thus the descendent field, T1, 0; T1, 1; T1, 2; T1, 3, provides a path to the new face), and combining the base mesh face, the vertex index and the path as a unique identifier (the overall data structure of the individual records comprising pointers to the other records is the unique and unambiguous identifier).

Finally, it is noted that the applicant has directed the argument recording the "surrounded" limitation to claim 9, but not all of the independent claim recite this limitation and thus the argument is not applicable to all of the claims.

Summary of Remark (Response Page 5): "A comparison of figures 2 and 3 of the present application illustrates new vertexes are surrounded by their base mesh faces, in the middle of the faces, not on any of the edges".

Examiner's Response: Not true. According to the disclosure, new vertexes are in fact created on the edges, along the base polygon. For example, looking at figure 6, new vertices of new faces are created that reside on the original base polygon. However, even so, Kolarov discloses new vertices that are completely surrounded by base mesh faces (e.g., V1, numeral 666 of figure 6).

Summary of Remark (Response Page 6): "The identifier of Kolarov does not include the base mesh as is emphasized in claim 9".

Examiner's Response: Disagreed. The "identifier" of Kolarov, as described above, includes records for each triangle, each having pointers to other records. The entire data structure is a self-contained and inter-linked series of records that together, serve to uniquely identify each of the subdivision faces. The record for the base mesh face identifies the triangle "T", and it in turn points to the descendent triangles, and so on. Thus, each of the descendent triangles comprises a base face identifier as part of the overall data structure. Further, since the descendent triangles are each named from the base face (e.g., T is the base face, T1 is a descendent, T1, 0 is a further descendent, etc.) then each of the descendents include a base mesh for that reason as well.

Summary of Remark (Response Page 6): Regarding claim 10, "the numbers 620, 624 etc. do not depict a level as in the present invention".

Examiner's Response: Claim 10 requires "determining a subdivision level of the face". This is exactly what Kolarov teaches (e.g., "coarsest level" and "finer level of subdivision" at column 17, line 38). The levels are indicated by the subdivision naming scheme and the data structure as described above.

Summary of Remark (Response Page 6). Kolarov does not teach "traversing the path to the face using the base face index and the vertex index".

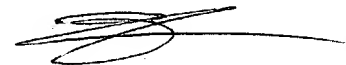
Examiner's Response: The entire point of the Kolarov naming scheme is to uniquely and unambiguously identify each subdivision face so that it can be located. In order to locate the face, the records must be traversed beginning with

Art Unit: 2621

the base face T, which in turn points to a subdivision face such as T1, which in turn points to a subdivision face such as T1, 0.

It is believed that the remaining arguments have been essentially answered by the examiner's explanation above.

Brian Werner  
Primary Examiner  
Art Unit 2621  
Friday, June 04, 2004



**BRIAN WERNER**  
**PRIMARY EXAMINER**